

WHAT IS CLAIMED IS:

1. A method for modeling video network reliability, the method comprising:  
obtaining historical data for multiple video conferences;  
5        executing a modeling algorithm that produces a model representing the  
historical data;  
analyzing the model to identify characteristics associated with undesirable  
outcomes for the video conferences; and  
configuring a video network to avoid at least one of the identified  
10        characteristics associated with undesirable outcomes.
2. The method of Claim 1, wherein the operation of executing a modeling  
algorithm that produces a model comprises executing a decision tree algorithm.
- 15        3. The method of Claim 2, wherein the operation of executing a decision tree  
algorithm comprises executing an ID3-based algorithm.
4. The method of Claim 1, further comprising conducting a new video  
conference with the video network configured to avoid at least one of the identified  
20        characteristics associated with undesirable outcomes.
5. The method of Claim 4, further comprising:  
updating the historical data to create new historical data that includes values  
representing characteristics of the new video conference;  
25        executing the modeling algorithm to produce a new model representing the  
new historical data;  
analyzing the new model to produce a result; and  
reconfiguring the video network according to the result.

6. The method of Claim 1, further comprising:  
evaluating the model to determine whether the model provides a desired level  
of efficacy; and  
5 in response to determining that the model does not provide a desired level of  
efficacy, using a different modeling algorithm to produce a different model.
7. The method of Claim 1, wherein:  
the method further comprises building a training set from the historical data;  
10 the operation of executing the modeling algorithm comprises applying the  
modeling algorithm to the training set; and  
the operation of analyzing the model comprises:  
deriving a rule set from the model; and  
analyzing the rule set to identify the characteristics associated with undesirable  
15 outcomes for the video conferences.
8. The method of Claim 7, wherein:  
the historical data includes attribute values for attributes of each video  
conference and an outcome value representing an outcome for each video conference;  
20 and  
the operation of applying the modeling algorithm to the training set comprises:  
using the outcome values as categorical attributes for the modeling algorithm;  
and  
using the attribute values as non-categorical attributes for the modeling  
25 algorithm.

9. The method of Claim 7, wherein:

the operation of obtaining historical data for multiple video conferences comprises obtaining a first endpoint identifier, a first endpoint vendor, a second  
5 endpoint identifier, a second endpoint vendor, and an outcome value for the multiple video conferences;

the operation of building a training set comprises including the first endpoint identifier, the first endpoint vendor, the second endpoint identifier, the second endpoint vendor, and the outcome value for the multiple video conferences in the  
10 training set; and

the operation of executing the modeling algorithm comprises using the first endpoint identifier, the first endpoint vendor, the second endpoint identifier, the second endpoint vendor, and the outcome value for the multiple video conferences to produce the model.

15 10. The method of Claim 7, wherein:

the training set includes values representing a first set of attributes; and  
the method further comprises:

evaluating the model to determine whether the model provides a desired level  
20 of efficacy;

in response to determining that the model does not provide a desired level of efficacy, building a different training set that includes a different set of attributes; and

applying the modeling algorithm to the different training set to produce a  
different model.

11. A program product for modeling video network reliability, the program product comprising:

a computer-usable medium; and

computer instructions encoded in the computer-usable medium, wherein the

5 computer instructions, when executed, cause a data processing system to perform operations comprising:

obtaining historical data for multiple video conferences; and

executing a modeling algorithm that produces a model representing the

historical data, such that the model can be analyzed to identify one or more

10 opportunities for improving reliability of a video network.

12. The program product of Claim 11, wherein the computer instructions cause the data processing system to perform further operations comprising:

outputting results that reveal at least one of the opportunities for improving

15 reliability of the video network, such that a user can reconfigure the video network, based on the results, to improve reliability of the video network.

13. The program product of Claim 11, wherein the computer instructions cause the data processing system to perform further operations comprising:

20 analyzing the model to identify the one or more opportunities for improving reliability of the video network; and

automatically reconfiguring the video network, based on the identified opportunities, to improve reliability of the video network.

14. The program product of Claim 11, wherein:

the operation of executing a modeling algorithm that produces a model  
comprises executing a decision tree algorithm.

5 15. The program product of Claim 11, wherein:

the operation of executing the decision tree algorithm comprises executing an  
ID3-based algorithm.

10 16. The program product of Claim 11, wherein the computer instructions cause the  
data processing system to perform further operations comprising:

updating the historical data to create new historical data that includes values  
representing characteristics of a new video conference;

executing the modeling algorithm to produce a new model representing the  
new historical data;

15 analyzing the new model to produce a result; and

reconfiguring the video network according to the result to improve reliability  
of the video network.

20 17. The program product of Claim 11, wherein the computer instructions cause the  
data processing system to perform further operations comprising:

building a training set from the historical data;

executing the modeling algorithm by applying the modeling algorithm to the  
training set; and

25 deriving a rule set from the model, such that the one or more opportunities for  
improving reliability of a video network can be identified by reference to the rule set.

18. The program product of Claim 17, wherein:

the historical data includes attribute values for attributes of each video conference and an outcome value representing an outcome for each video conference;  
the modeling algorithm uses the outcome values as categorical attributes; and  
5 the modeling algorithm uses the attribute values as non-categorical attributes.

19. The program product of Claim 17, wherein:

the computer instructions cause the data processing system to obtain a first endpoint identifier, a first endpoint vendor, a second endpoint identifier, a second  
10 endpoint vendor, and an outcome value for the multiple video conferences;  
the computer instructions cause the first endpoint identifier, the first endpoint vendor, the second endpoint identifier, the second endpoint vendor, and the outcome value for the multiple video conferences to be stored in the training set; and  
the modeling algorithm uses the first endpoint identifier, the first endpoint  
15 vendor, the second endpoint identifier, the second endpoint vendor, and the outcome value for the multiple video conferences to produce the model.

20. A data processing system for modeling video network reliability, the data processing system comprising:

one or more processing units;

a computer-usable medium in communication with the one or more processing

5 units; and

computer instructions encoded in the computer-usable medium which, when executed by the one or more processing units, cause the data processing system to perform operations comprising:

obtaining historical data for multiple video conferences; and

10 executing a modeling algorithm that produces a model representing the historical data, such that the model can be analyzed to identify one or more opportunities for improving reliability of a video network.